National Conference on Drug Delivery System

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NIOSOMES AS A NOVEL DRUG DELIVERY SYSTEM

KHAJA PASHA, Professor, AZAD COLLEGE OF PHARMACY

Abstract:Niosome are non-ionic surfactant vesicles obtained by hydrating mixture of cholesterol and non-ionic surfactants. It can be used as carriers of amphiphilic and lipophilic drug. In niosomes drug delivery system, the medication is encapsulated in a vesicle. Niosomes are biodegradable, biocompatible non-immunogenic and exhibit flexibility in their structural characterization. The main object of this project work is the application of niosome technology is used to treat a number of diseases, niosome have good opportunity in research and beneficial for researcher and pharma industries. Niosome appears to be a well preferred drug delivery system over liposome as niosome being stable and economic also niosomes have great drug delivery potential for targeted delivery of anti-cancer, anti-infective agents. Drug delivery potential of niosome can enhances by using novel drug delivery concepts like proniosomes, discomes and aspasome. Niosomes also serve better aid in diagnostic imaging and as a vaccine adjuvant.Treatment of infectious diseases and immunisation has undergone a revolutionary shift in recent years. Not only a large number of disease-specific biological have been developed, but also emphasis has been made to effectively deliver these biological. Niosomes represent an emerging class of novel vesicular systems. Niosomes are self-assembled vesicles composed primarily of synthetic surfactants and cholesterol. Comprehensive research carried over niosome as a drug carrier. Various drugs are enlisted and tried in niosome surfactant vesicles. Niosomes proved to be a promising drug carrier and has potential to reduce the side effects of drugs and increased therapeutic effectiveness in various diseases.Thus, these areas need further exploration and research so as to bring out or to make for commercially available niosomal preparation.

PHARMACOGENOMICS AND PHARMACOGENETICS

SUMIA FATIMA, Associate Professor, AZAD COLLEGE OF PHARMACY

Abstract:Pharmacogenetics and pharmacogenomics involve the study of the role of inheritance in individual variation in drug response, a phenotype that varies from potentially life-threatening adverse drug reactions to equally serious lack of therapeutic efficacy. This discipline evolved from the convergence of rapid advances in molecular pharmacology and genomics. Originally, pharmacogenetic studies focused on monogenic traits, often involving genetic variation in drug metabolism. However, contemporary studies increasingly involve entire “pathways” encoding proteins that influence both pharmacokinetics—factors that influence the concentration of a drug reaching its target(s)—and pharmacodynamics, the drug target itself, as well as genome-wide approaches. Pharmacogenomics is also increasingly moving across the “translational interface” into the clinic and is being incorporated into the drug development process and the governmental regulation of that process. However, significant challenges remain to be overcome if pharmacogenetics-pharmacogenomics is to achieve its full potential as a major medical application of genomic science.The approval of new medicines has slowed significantly over the past years. In order to accelerate the development of new compounds, novel approaches in drug development are required. Translational medicine or research, an emerging discipline on the frontier of basic science and medical practice, has the potential to enhance the speed and efficiency of the drug development process through the utilization of pharmacogenetics and pharmacogenomics. The utilization of these methods in the drug development process may therefore identify patient sub-populations that exhibit more effective responses and/or an improved benefit/risk profile upon treatment.

POST COVID DIABETES

SAHEEL QURESHI , Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:A novel coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease 2019 (COVID-19]) is now at global pandemic levels causing significant morbidity and mortality. Patients with diabetes are particularly vulnerate and more likely to get severe complications when infected with this virus. Although the information continues to emerge, here we provide our perspective on initial outcomes observed in hospitalized patients with diabetes and the potential role played by the proinflammatory metabolic state in these patients that promotes fertile ground for the virus inflammatory surge, resulting in severe insulin resistance and severe hyperglycemia. The rapidly evolving renal failure, hypotension, pressor and steroid use, and variable nutritional support further complicates their management. Thus, timely implementation of glucose management protocols addressing these complex scenarios while also following COVID-19-related trajectories in inflammatory biomarkers and being cognizant of the health care provider exposure may substantially affect morbidity and mortal. people with diabetes have higher risks of various infections. Therefore, these diabetic patients might be at increased risk of COVID-19 and have a poorer prognosis. Up until now, little is known about critical role in the pathogenesis. This study aims to investigate the clinical characteristics of COVID-19 patients with diabetes and secondary hyperglycemia, as well as to explore the purported mechanisms. 80 confirmed COVID-19 subjects were classified into the euglycemia. group, secondary hyperglycemia group, and diabetes group. Severity of COVID-19 was defined based on the diagnostic and treatment guideline for SARS-CoV-2 issued by Chinese National Health Committee. According to the severity of the disease, patients of the mild type and common type were registered as mild cases (patients with minimal symptoms and negative CT findings), while patients of the severe type and critical type were enrolled as severe cases (patients with positive CT findings and different extent of clinical manifestations).

PRECISION MEDICINE: A NEW ERA FOR TREATMENT

VENKATA RAMANA MUTTAVARAPU, Professor, AZAD COLLEGE OF PHARMACY

Abstract:There is great potential for genome sequencing to enhance patient care through improved diagnostic sensitivity and more precise therapeutic targeting. To maximize this potential, genomics strategies that have been developed for genetic discovery — including DNA-sequencing technologies and analysis algorithms — need to be adapted to fit clinical needs. This will require the optimization of alignment algorithms, attention to quality-coverage metrics, tailored solutions for paralogous or low-complexity areas of the genome, and the adoption of consensus standards for variant calling and interpretation. Global sharing of this more accurate genotypic and phenotypic data will accelerate the determination of causality for novel genes or variants. Thus, a deeper understanding of disease will be realized that will allow its targeting with much greater therapeutic precision.Precision medicine describes the definition of disease at a higher resolution by genomic and other technologies to enable more precise targeting of subgroups of disease with new therapies. Prominent examples include cystic fibrosis and cancer.Clinical genomics exists at the intersection of sequencing-led discovery genetics in population cohorts and historical low-throughput approaches to genetic diagnosis in patients. As a result of the different aims of these two endeavours, technologies and algorithms that have been developed for discovery genomics need to be optimized before application to clinical medicine.Areas of need include the improvement of sequencing technologies. Current short-read approaches are limited in areas of the genome of low complexity (such as repeats), regions of high GC content, regions that are highly polymorphic or that include small-scale (indel) or large-scale (structural variant) disruption of the open reading frame.

REVIEW ON VETERNARY DRUG DELIVERY SYSTEM

MUBEENA SALAAR, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:One of the challenges to the success of veterinary pharmacotherapy is the limited number of drugs and dosage forms available exclusively to this market, due to the interspecies variability of animals, such as anatomy, physiology, pharmacokinetics, and pharmacodynamics. For this reason, studies in this area have become a highlight, since they are still scarce in comparison with those on human drug use. To overcome many limitations related to the bioavailability, efficacy, and safety of pharmacotherapy in animals, especially livestock and domestic animals, polymers-based drug delivery systems are promising tools if they guarantee greater selectivity and less toxicity in dosage forms. In addition, these tools may be developed according to the great interspecies variability. To contribute to these discussions, this paper provides an updated review of the major polymer-based drug delivery systems projected for veterinary use. Traditional and innovative drug delivery systems based on polymers are presented, with an emphasis on films, microparticles, micelles, nanogels, nanoparticles, tablets, implants and hydrogel-based drug delivery systems. We discuss important concepts for the veterinarian about the mechanisms of drug release and, for the pharmacist, the advantages in the development of pharmaceutical forms for the animal population. Finally, challenges and opportunities are presented in the field of pharmaceutical dosage forms for veterinary use in response to the interests of the pharmaceutical industry.

ROLE OF FUNCTIONALISED GUM IN SOLID DISPERSION OF AN ANTIBIOTIC DRUG

MAHESH GOTTIPATI, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract: Solid dispersions have attracted considerable interest as an efficient means of improving the dissolution rate and hence the bioavailability of a range of poorly water-soluble drugs. Solid dispersions of poorly water-soluble drugs with water-soluble carriers have been reduced the incidence of these problems and enhanced dissolution. Since a solid dispersion is basically a drug–polymer two-component system, the drug–polymer interaction and performance.Poor water solubility is one of the major drawbacks for the various types of drugs and various approaches have been introduced for the enhancement of solubility of such drugs. The solubility behaviour of drugs is one of the most challenging aspects for formulation development. Solid dispersions are one of the most promising strategies to improve the oral bioavailability of poorly aqueous soluble drugs by reducing drug particle size to the absolute minimum, increasing surface area and hence improving drug wettability, bioavailability may be significantly improved. Solid dispersions are generally prepared with a drug which is having poor aqueous solubility and with a water-soluble hydrophilic carrier. This project work reviews the various preparation techniques for solid dispersion and compiles some of the recent technology transfers. The different types of solid dispersions based on the molecular arrangement have been highlighted. Some of the practical aspects to be considered for the preparation of solid dispersions, such as selection of carrier and methods of physicochemical characterization, along with an insight into the molecular arrangement of drugs in solid dispersions are also discussed. Finally, an in-depth rationale for limited commercialization of solid dispersions and recent revival has been considered.The focus of this project workon advantages, disadvantages and the method of preparation, and characterization of the solid dispersion.

ROLE OF NANOCRYSTALS AND NANOSUSPENSION IN DRUG DELIVERY SYSTEM

MOHAMMAD TABASSU TANVEER HAYATH, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:Rapid advancement in drug discovery process is leading to a number of potential new drug candidates having excellent drug efficacy but limited aqueous solubility. By virtue of the submicron particle size and distinct physicochemical properties, nanosuspension has the potential ability to tackle many formulation and drug delivery issues typically associated with poorly water and lipid soluble drugs.Nearly 40% of drugs coming to the market nowadays are having poor solvency related issues and 70% molecules in discovery pipeline are in effect fundamentally insoluble in water. Nanocrystals is an unmistakable instrument to tackle the issue identified with poor fluid solvency and helps in improving the bioavailability of various drugs as presented in the literature. The particle size reduction came about into temperamental nanocrystalline system and the phenomenon of ostwald ripening happens. These techniques are preparing to the improvement of nanosized objects, which can play out multiple technological tasks. There are a few couples of noteworthy benefits of nanocrystal formulations, for example, upgrade oral bioavailability, improved dose proportionality, reduced food effects, appropriateness for administration by all routes and probability of sterile filtration because of diminished particle size range. One of the most adequate preferences of nanocrystals is their wide scope of utilization, for example, ophthalmic delivery, oral delivery, transdermal delivery, pulmonary delivery, intravenous delivery and targeted delivery, especially for tumour and brain. The increment in commercial value of nanocrystals just as the measure of nanocrystal products in the market is picking up more of attention to be utilized as a strategy so as to get commercial advantages. In this project work a brief and accurate precis of nanosuspension is stated with specific spotlight on nanosuspension preparation methodologies, benefits and few major applications of nanosuspensions.

STEM CELL THERAPIES

IKRAM SARMAD MOHAMMAD MOHAMMAD ARSALAN, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:Stem cell-based therapy, including human pluripotent stem cells (hPSCs) and multipotent mesenchymal stem cells (MSCs), has recently emerged as a key player in regenerative medicine. hPSCs are defined as self-renewable cell types conferring the ability to differentiate into various cellular phenotypes of the human body, including three germ layers. MSCs are multipotent progenitor cells possessing self-renewal ability (limited in vitro) and differentiation potential into mesenchymal lineages, according to the International Society for Cell and Gene Therapy (ISCT). This review provides an update on recent clinical applications using either hPSCs or MSCs derived from bone marrow (BM), adipose tissue (AT), or the umbilical cord (UC) for the treatment of human diseases, including neurological disorders, pulmonary dysfunctions, metabolic/endocrine-related diseases, reproductive disorders, skin burns, and cardiovascular conditions. Moreover, we discuss our own clinical trial experiences on targeted therapies using MSCs in a clinical setting, and we propose and discuss the MSC tissue origin concept and how MSC origin may contribute to the role of MSCs in downstream applications, with the ultimate objective of facilitating translational research in regenerative medicine into clinical applications. The mechanisms discussed here support the proposed hypothesis that BM-MSCs are potentially good candidates for brain and spinal cord injury treatment, AT-MSCs are potentially good candidates for reproductive disorder treatment and skin regeneration, and UC-MSCs are potentially good candidates for pulmonary disease and acute respiratory distress syndrome treatment.

VALIDATEDSPECTROPHOTOMETRIC DETERMINATION OF ACYCLOVIR BY DERIVATIVE METHOD

SARA BANU, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT

A derivative spectrophotometric method was validated for quantification of acyclovir in poly (n-butylcyanoacrylate) (PBCA) nanoparticles. Specificity, linearity, precision, accuracy, recovery, detection (LOD) and quantification (LOQ) limits were established for method validation. First-derivative at 252 nm eliminated interferences from nanoparticle ingredients and presented linearity for acyclovir concentrations ranging from 5to 30.0 µg/mL (r = 0.9982). Precision and accuracy data demonstrated good reproducibility. Recovery ranged from 99.1 to 100.01. Thus, the proposed method proved to be easy, low cost, and accurate, and therefore, an useful alternative to quantify acyclovir in nanoparticles. Derivative UV-spectrophotometry is an analytical technique of enormous implication commonly in obtaining mutually qualitative and quantitative in order from spectra that are of unresolved bands, with respect to qualitative and quantitative analysis, it uses first or higher derivatives of absorbance .Derivative spectroscopy uses first or higher derivatives of absorbance with respect to wavelength for qualitative analysis and for quantification. The concept of derivatizing spectral data was first introduced in the 1950s, when it was shown to have many advantages. However, the technique received little attention primarily because of the complexity of generating derivative spectra using early UV-Visible spectrophotometers. The introduction of microcomputers in the late 1970s made it generally practicable to use mathematical methods to generate derivative spectra quickly, easily and reproducibly. This significantly increased the use of the derivative technique. In this application note we review briefly the mathematics and generation methods of derivative spectroscopy. We illustrate the features and applications using computer-generated examples.

A REVIEW ON POST COVID DIABETES

PRAKASH CHANDRA DASH, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT

The raging COVID-19 pandemic is in its third year of global impact. The SARS CoV 2 virus has a high rate of spread, protean manifestations, and a high morbidity and mortality in individuals with predisposing risk factors. The pathophysiologic mechanisms involve a heightened systemic inflammatory state, cardiometabolic derangements, and varying degrees of glucose intolerance. The latter can be evident as significant hyperglycemia leading to new-onset diabetes or worsening of preexisting disease. Unfortunately, the clinical course beyond the acute phase of the illness may persist in the form of a variety of symptoms that together form the so-called "Long COVID" or "Post-COVID Syndrome". It is thought that a chronic, low-grade inflammatory and immunologic state persists during this phase, which may last for weeks or months. Although numerous insights have been gained into COVID-related hyperglycemia and diabetes, its prediction, course, and management remain to be fully elucidated.

EVALUATION OF PRELIMINARY PHYTOCHEMICAL AND ANTIMICROBIAL ACTIVITY OF CARICA PAPAYA LEAF AND SEED EXTRACT.

MANDADI PAVANI, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

The Carica papaya plant materials such as leaf, fruit (and seed) were collected and allowed to drying in dark place and ground in electric chopper. The powdered plant materials were filled separately in the thimble and extracted successively using a soxhlet extractor with distilled water, acetone, chloroform and ethanal. All the extracts were subjected to systematic phytochemical screening for the presence of phytochemical contituents. This indicates the presence carbohydrates, protein, vitamin C, tannin, alkaloids, flavanoids, steroids and saponin. Antimicrobial activities of all the extract were determined by well diffusion method. In this observation, the leaf of Carica papaya exhibits significant inhibitory activity against all test pathogens, in all plant material, ethanol extracts showed maximum activity.

DETERMINATION OF ANTI DIABETIC ACTIVITY AND BIOCHEMICAL PARAMETERS OF MURRAYA KOENIGII WHOLE PLANT IN DIABETIC INDUCED RATS

SHAIK GOUSIA TAYABA, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

The present study was carried out to evaluate the antidiabetic effect and histological parameters of Murraya Koenigii in Alloxan induced diabetic albino rats. The experimental rats weighed 200-250g were induced for diabetes with single dose of alloxan (120mg/kg body weight). Oral administration of chloroform extracts of Murraya leaf (250 and 500mg/kg body weight) for 30 days resulted in significant decrease of blood glucose from 296.62±20.12 to 80.22 ± 03.63 and decrease in the activities of enzymes of liver. To study the histology of Murraya Koenigii in Alloxan induced albino rats, sampling and staining of pancreas, spleen, liver and kidney tissues of diabetic and normal rats showed that strong antigenesity in beta-cells of the islets in control. Degenerative and necrotic changes and shrunken tissues in islets of langerhans were observed in diabetic induced group. Majority of the cells are protected from light degeneration when treated with 25 and 50 ml/kg/bw of Murraya and moderate antigenesity was noted in beta-cells of the islets of langerhans of the pancreatic tissue. Diabetic rats treated with murraya (25 ml/kg/bw) showed an improvement in the spleen histology and treated with Murraya (50 ml/kg/bw) shows a result similar to that of non- diabetic control. The results showed not only significant anti-hyperglycemic effect of Murraya extracts in experimental model of diabetes mellitus but also indicated a dose dependant activity of the extracts.

FORMULATION AND EVALUATION OF HERBAL SHAMPOO *CONTAINING* TRIGONELLA FOENUM-GRAECUM

RAO ARCHANA, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT:

Abstract:

Hair dandruff is not a life threatening problem yet it often threatens your mental peace, you do not wish to be embarrassed by the white flaky dandruff powder all over shoulder. “Dandruff” is the mild form of seborrheic dermatitis is an inflammatory condition that is characterized by flaking and shedding of dead scalp at an abnormally high rate. Natural herbs are good solution for dandruff and “Fenugreek” i.e. Trigonella foenum-graecum is a natural herb which helps in killing a type of fungus i.e. Malassezia furfur and bacteria i.e. Staphylococcus which causes dandruff. Many scientist have confirmed that fenugreek contain a large amount of lecithin which is a natural emollient and give power to hair. A study shows the anti-fungal activity of fenugreek germinated seed extract at concentration of 0.35g/ml[1 ml of extract and 3 ml of water(1:4)]was found to be more effective in declining growth of dandruff causing fungus Malassezia furfur. Concluding that, the use of fenugreek seed extract was functional in inhibiting the growth of microorganism. Hence, the anti-dandruff shampoo containing Trigonella foenum-graecum L. seed extract is found to be effective in treatment of dandruff.

SYNTHESIS INVITRO ANTI INFLAMMATORY ACTIVITY AND MOLECULAR STUDY OF SOME NOVEL 2- SUSBTITUTEDS BENZIMIDAZOLE DERIVATIVES

SWATHI GADDAMIDI, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT:

In this work, a series of benzimidazoles derivatives HW1-HW7 were synthesized and in vitro, in silico anti-inflammatory activity study was performed. All the synthesized compounds showed moderate to good anti-inflammatory activity in in vitro, in silico assay respectively. For the comparison diclofenac sodium is used as the standard compound for both in vitro, in silico study. It was found to be compound HW6 and HW5 shows very good anti-inflammatory activity (1.0 µg/ml and 1.2µg/ml) when compares with diclofenac sodium (0.5 µg/ml). Similarly in silico study of compound HW5 shows maximum binding energy of -10.36kcal/mol.

EVALUATION AND ANTI OBESITY ACTIVITY OF TERMINALIA CHEBULA FRUITS EXTRACT OF HIGH FAT INDUCED RATS

YELLU SAMARASIMHAREDDY, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT:

This study was done to investigate the anti-hyperlipidemic activity of Terminalia bellerica against high fat diet induced hyperlipidemia and obesity. Terminalia bellerica commonly known as Baheda, one of the most common plants being used in India since early times in many disorders one of the ingredients in many herbal formulations like Triphala, etc., used for cardiac disorders. The ethanolic extract of the fruits of Terminalia bellerica 250 mg/kg and 500 mg/kg body weight was administered p.o. for 20 days to test anti-hyperlipidemic activity. The parameters for evaluation of anti-hyperlipidemic activity are the physical parameters and the biochemical estimations. The physical parameters were gross examination of heart, heart weight and body weight ratio, liver weight, atherogenic index and basal metabolic index. In biochemical estimations, various cardiac enzymes like lactate dehydrogenase, and the lipid profile were measured. The results of present study show that alcoholic extract of Terminalia bellerica (500 mg/Kg) has significant reduction in various lipid levels as well as the elevated physical parameters like heart weight, body weight ratio, body weight gain and BMI against high fat diet induced hyperlipidemia and obesity compared to clinically used drugs, Atorvastatin (10 mg/kg) and Orlistat (pure drug 10 mg/kg).

EVALUATION OF ANTI ULCER ACTIVITY OF ANACARDIUM OCCIDENTALE LEAVES EXTRACT IN ALBINO RAT

MOHAMMAD KHAN, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT

Anacardium occidentale(AO) has been used to treat peptic ulcer disease in Ethiopian folk medicine, but its efficacy has not been validated. The present study was therefore carried out to evaluate the anti-ulcer activity of 80% methanol leaf extract of AO in rats. The effect of AO extract on gastric ulcer in rats in pylorus ligation-induced and ethanol-induced models was studied using single dosing (100, 200, 400 mg/kg) and repeated dosing (200 mg/kg for 10 and 20 days) approaches. Ranitidine (50 mg/kg) and sucralfate (100 mg/kg) were used as the standard drugs. Depending on the model, outcome measures were volume and pH of gastric fluid, total acidity, ulcer score, percent inhibition of ulcer score, ulcer index as well as percent inhibition of ulcer index. Data were analyzed using one-way analysis of variance followed by Tukey's post hoc test, and $P<0.05$ was considered as statistically significant. AO significantly ($P<0.001$) reduced gastric ulcer index by 55.82% and 62.11%, respectively, in pylorus ligation-induced and ethanol-induced ulcer models at the 400 mg/kg dose, which is comparable to the standard drugs. Ten and 20 days pre-treatment with AO 200 exhibited significant ($P<0.001$) ulcer inhibition by 66.48% and 68.36% (pylorus ligation-induced model) as well as 71.48% and 85.35% (ethanol-induced model), respectively. AO possesses both dose-dependent and time-dependent anti-ulcer effect in the two models. The oral median lethal dose (LD_{50}) is estimated to be higher than 2000 mg/kg for the crude hydroalcoholic extract, and secondary metabolites such as flavonoids, tannins, and saponins were present. The findings of this study confirmed that AO has anti-ulcer pharmacologic activity due to one or more of the secondary metabolites present in it. Therefore, this study validates its anti-ulcer use in Ethiopian folk medicine. Further investigations on isolation of specific phytochemicals and elucidating mechanisms of action are needed.

EVALUATING ANTI CANCER POTENTIAL OF METHANOLIC EXTRACT AND FRACTION OF AZADIRACHTA INDIA STEM BARK ANTI OXIDANT PROPERTY

BEGUM SABIHA, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT:

Barks extracts of four different trees (*Azadirachta indica*, *Terminalia arjuna*, *Acacia nilotica*, and *Eugenia jambolana* Lam.) in three different solvents 80% methanol, 80% ethanol, and 80% acetone (solvent:water, 80:20 v/v) were evaluated for their antioxidant activity, total phenolic (TP), and total flavonoids (TF) contents. Antioxidant activity (AA) was determined by measuring reducing power, inhibition of peroxidation using linoleic acid system and 2,2′-diphenyl-1-picrylhydrazyl radical (DPPH) scavenging activity. Significant ($P < 0.05$) differences were observed in the TP, TF, inhibition of linoleic acid oxidation and $DPPH^{\cdot}$ scavenging activity of different bark extracts. Nevertheless, minute variation was observed in reducing power. All the bark extracts exhibited wide range of total phenolic, 7.8–16.5 gallic acid equivalents and total flavonoid contents, 1.59–4.93 catechin equivalents. Reducing power at 10 mg/mL extract concentration ranged from 1.34 to 1.87. Different bark extracts inhibited oxidation of linoleic acid by 44–90% while DPPH radical scavenging activity ranged from 49% to 87%. Extraction efficacy of components with antioxidative properties was lowering in the following order: ethanol > methanol > acetone. Good correlation was observed between TP and DPPH scavenging activity among the extracts. *A. nilotica* bark had the highest amounts of TP, ranging from 9.2 to 16.5 g/100 g, while the highest AA as measurement by inhibition of linoleic acid oxidation is offered by bark from *E. jambolana* Lam. The same tree showed the highest DPPH scavenging activity and reducing power. The correlation among the results of different antioxidant assays although revealed a strong relationship between some of the assays, however, a number of different methods may be necessary to adequately assess the in vitro antioxidant activity of a specific plant material.

FORMULATION AND EVALUATION OF BUCCAL PATCHES CONTAINING METOPROLOL TARTRATE.

PITTALA GIRIJA, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT:

The aim of study was to prepare and characterize buccoadhesive tablets of Metoprolol tartrate using different Mucoadhesive polymers such as Carbopol 934, Sodium alginate and HPMC K4M in combination. Ten formulations were prepared with varying concentrations of polymers using combination of two polymers in each formulation. Formulations F1 to F5 were composed of Sodium alginate and HPMC K4M mixture in drug: polymer mixture ratios of 1:0.75 to 1:1.75 where as formulations F6 to F10 were composed of carbopol 934 and HPMC K4M mixture in same drug: polymer mixture ratios. The prepared tablets were evaluated for physicochemical parameters such as hardness, thickness uniformity, weight variation, surface pH, Ex-vivo residence time and moisture absorption studies. The prepared tablets were also evaluated for bioadhesive strength and in vitro drug release. In vitro bioadhesive strength and in vitro release studies showed that formulation F8 containing 1:1.25 ratio of drug and polymer combination showed optimum bioadhesive and exhibited optimum drug release (77.33±0.23). FTIR results showed no evidence of interaction between the drug and polymers.

FORMULATION AND EVALUATION OF HERBAL SHAMPOO CONTAINING RAMBUTAN LEAVES EXTRACT

ABDUL MUDASIR MOHAMMED, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT

Rambutan (Nephelium lappaceum Linn.) can be found widely in Malaysia, belongs to the family Sapindaceae. The leaves of rambutan are traditionally used for hair care and many people experience a noticeable change in their hair quality in just a few weeks. However, there is no study has been reported in herbal shampoo preparation containing rambutan leaves extract. The present study was aimed to formulate an herbal shampoo containing rambutan leaves extract and to evaluate its physicochemical properties. The herbal shampoo was formulated by incorporating the methanolic extract of rambutan leaves. Several tests such as visual inspection, pH, percentage of solid contents, foam ability and stability studies were performed to determine the physicochemical properties of the formulated herbal shampoo. The conditioning performance was evaluated by administering a blind test to 11 volunteers. The majority of the volunteers rated that the tresses washed with formulated shampoo was found to be 2.18 ± 0.40. The results clearly indicate that the formulated shampoo is having a satisfactory conditioning performance level. All the ingredients used to formulate shampoo are safer and the physicochemical evaluation showed ideal results, but further research is required to improve its quality and identify the constituents that are responsible for the performance.

FORMULATION AND EVALUATION OF HERBAL SHAMPOO CONTAINING OLIVE LEAVES EXTRACT

ZAREENA BEGUM, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

The study aimed at formulating a herbal shampoo containing olive leaves extract and evaluating its physiochemical properties. Olive leaves extract in shampoo is commercially available in Palestine, but because the R&D departments do not get sufficient attention neither in the private nor in the public sector, most of those products are a reproduction of what has been produced in developed countries. Moreover, there are still few data available on their stability in literature. The herbal shampoo was formulated by incorporating the ethanolic extract of olive leaves standardized for Oleuropein, which has antioxidant, anti-inflammatory and hair protectant properties. Several tests such as visual inspection, pH, percentage of the active ingredient and foam ability were conducted. Stability studies were also performed to determine the physiochemical properties of the formulated herbal shampoo. Three formulas (F1, F2 and F3) containing the same concentration of olive leave extract (1.0% w/w) were prepared. All ingredients used to formulate the shampoo were found to be safe and the physiochemical evaluation showed ideal results. Stability studies showed a stable homogenous appearance during six months of storage at different temperatures (4-8 oC, 40 oC and at ambient temperature). However, formula 3 gave optimum sta

MICROWAVE ASSISTED SYNTHESIS, QSAR AND MOLECULAR DOCKING STUDIES OF 2,4-THIAZOLIDINEDIONE DERIVATIVES

ARSHIYA JABEEN, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

Synthetic organic chemistry involves selection and optimization of lead, synthesis and characterization of work for practical purposes. A series of new thiazolidinedione derivatives have been designed and synthesized through microwave-assisted technique. The synthesized compounds were screened by Insilco methods like molecular docking, QSAR studies in order to explore the anti-diabetic activity, synthetic assessability of compounds against the peroxisome proliferator-activated the receptor (PPARγ). Compounds which showed higher glide score than standard (Pioglitazone) were synthesized using the microwave. Compounds were characterized with the help of FTInfrared spectroscopy, Proton NMR, C-13 NMR spectroscopic studies and Lc-Ms.

Keywords: Anti-diabetic activity, Peroxisome proliferator-activated receptor (PPARγ), 2, 4-thiazolidinedione derivatives, pioglitazone, Molecular Docking.

SIMULTANEOUS ESTIMATION AND VALIDATION OF ARTEMETHER AND LUMEFANTRINE BY UV SPECTROPHOTOMETRY IN TABLET

MAHESH GAJJELA, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

A UV spectrophotometric method has been developed for the simultaneous determination of Artemether and Lumefantrine. The spectroscopic method for estimation of Artemether and Lumefantrine employed Area under curve method for analysis using Ethanol as solvent. Artemether has absorbance maxima 253.2 nm and Lumefantrine has absorbance maxima 235.2 nm and both these drugs obey Beer's law in concentration range of 4.24 -67.84 μg/ml for Artemether and 4.68 -28.08 μg/ml for Lumefantrine. The recovery studies ascertained the accuracy of the purposed method and the results were validated as per ICH guidelines. The results were found satisfactory and reproducible. The method was applied successfully for the estimation of Artemether and Lumefantrine in tablet dosage form without the interference of common excipients.

FACTORS LEADING TO FAILURE OF FIRST LINE ANTI RETROVIRAL THERAPY (ART); A RETROSPECTIVE STUDY IN INDIAN TERITIARY CARE GOVERNMENT SETTINGS

JONGONI SOWJANYA, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

Background: HIV is a lenti virus that causes HIV infection in humans in which progressive failure of immune system allows life threatening opportunistic infections and cancers to thrive. So it is important to study the factors that lead to failure of first line ART.

Aims and Objectives: To find out the factors leading to failure of first line ART like socio-demographic factors, clinical factors, immunological factors, virological factors etc.To assess the CD4 count in subjects using first line and second line ART. To assess the viral load in subjects who failed first line ART.

Methodology: Retrospective cohort observational study was conducted to assess the factors leading to the failure of first line ART. HIV patients who met inclusion criteria were informed consented and included in the study and relevant data was collected in a prior designed data collection form.

Results: In our study we found that controls were more among 30-40 yrs age. Males and females were equally distributed in cases and controls. Widowed females were found more among cases. Illiterates were found more among cases than controls. Cases children were more HIV seropositives than controls. Cases were more in WHO stage-4 clinical staging than controls. Cases had more number of drug substitutions, drug related adverse effects, low medication adherence, more number of LFUS and hospitalisations than controls. Cases were more in number who travels more than 60 minutes and more time gap between diagnosis and time of ART initiation and cases had raised RFTS, LFTS, and lipid profile at time of treatment failure. Cases had more serious opportunistic infections than controls.

MOLECULAR DOCKING STUDY ON DIPEPTIDYL PEPTIDASE-4 INHIBITORS

RAMAVATH AKSHATHA NAIK, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

Dipeptidyl peptidase (DPP)-IV inhibitors are a new approach to the treatment of type-2 diabetes. DPP-IV is a member of a family of serine peptidases that includes quiescent cell proline dipeptidase (QPP), DPP8, and DPP9. DPP-IV is a key regulator of incretin hormones, but the functions of other family members are unknown. To determine the importance of selective DPP-IV inhibition for the treatment of diabetes, we conducted molecular docking studies on clinical inhibitors of DPP-IV.

ASSESSMENT OF HEALTH RELATED QUALITY OF LIFE IN HYPERTENSIVE PATIENTS IN RURAL POPULATION OF GUNTUR DISTRICT IN SOUTH INDIA

NALLAMETLA SAI KUMAR, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

Background: Hypertension is considered as one of the leading causes of death and disability, and its prevalence is rapidly increasing in developing countries. Adequate treatment of high blood pressure lowers the cardiovascular risk and other complications like vascular disease, and chronic kidney disease. However, the major problem for controlling hypertension is compliance with treatment.

Aim and Objectives: To study and assess the quality of life in patients suffering from hypertension.

Methodology: A prospective observational cohort study was conducted for a period of 6 months in a rural area of Guntur. A total of 300 hypertensive patients who are newly diagnosed or suffering from hypertension since 3 years were recruited. Blood pressure was measured by using a sphygmomanometer and other demographics were collected. Health related quality of life was assessed by using 36-item short form (SF-36) and respective scores were calculated.

Results: By using SF-36 questionnaire Physical health (49.4) was the component mostly effected in hypertensive patients followed by Vitality (61.75), emotional aspects (69.06), pain (67.3), social functioning (78.54), appear to be least affected.

Conclusion: Proper treatment and awareness about hypertension is necessary to improve patient's quality of life. Good compliance not only improves the clinical outcomes, it is also having a great impact on improving quality of life and reducing health care costs which are due to complication and co-morbidities of hypertension.

NEED OF INNOVATION IN DOCTOR OF PHARMACY EDUCATION IN INDIA: STRATEGIES FOR A HIGHER DESTINY

TARANNUM FATIMA, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

A Doctor of Pharmacy (PharmD; Neo-Latin Pharmaciae Doctor) is an expert doctorate degree in pharmacy. In certain countries, it is a first professional degree and necessary for licensing to exercise the pharmacy career or to transform into a clinical drug specialist. The Clinical pharmacy has emerged as one of the newest branches of pharmacy in 21st Century. The clinical Pharmacists role in patient care is expanding, and the profession must prepare its graduates for direct patient care. In India there is accelerated work load on doctors who are unable to appear over usual healthcare services, hence here is an opportunity for PharmDs to explore their clinical knowledge which may improve the overall health care of society. Therefore, PharmD student should be trained to fabricate, disseminate, and apply new knowledge to determine cutting-edge research within the pharmaceutical, social, and clinical sciences; collaborate with other health professionals and to strengthen the quality of life through improved health for the people of our society and also because the global community. This article focuses on the possibility of innovative or imaginative ecosystems and trademark organization, as the rapidly developing pharmaceutical sector endeavors to turn into a global centre of unique medication examination and assembling, PharmD graduates with the proper training and knowledge have significant potential to power the clinical pharmacy growth in India.

DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR QUANTITATIVE ESTIMATION OF VINPOCETINE IN PURE AND PHARMACEUTICAL DOSAGE FORMS

TEJAKUMAR REDDY KONATHAM, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

A simple, precise, specific, and accurate reversed phase high performance liquid chromatographic (RP-HPLC) method was developed and validated for determination of vinpocetine in pure and pharmaceutical dosage forms. The different analytical performance parameters such as linearity, accuracy, specificity, precision, and sensitivity (limit of detection and limit of quantitation) were determined according to International Conference on Harmonization ICH Q2 (R1) guidelines. RP-HPLC was conducted on Zorbax C_{18} (150 mm length × 4.6 mm ID, 5 μm) column. The mobile phase was consisting of buffer (containing 1.54% w/v ammonium acetate solution) and acetonitrile in the ratio (40 : 60, v/v), and the flow rate was maintained at 1.0 mLmin^{-1}. Vinpocetine was monitored using Agilent 1200 series equipped with photo diode array detector (λ = 280 nm). Linearity was observed in concentration range of 160–240 μgmL^{-1}, and correlation coefficient was found excellent (R^2 = 0.999). All the system suitability parameters were found within the range. The proposed method is rapid, cost-effective and can be used as a quality-control tool for routine quantitative analysis of vinpocetine in pure and pharmaceutical dosage forms.

FORMULATION AND EVALUATION OF OPHTHALMIC DELIVERY OF FLUCONAZOLE FROM ION ACTIVATED IN SITU GELLING SYSTEM

FASIUDDIN AHMED, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

Fungal keratitis is a sight threating ocular infection that most frequently occur as a infection of candida species. The present work describes the formulation and evaluation of an ophthalmic delivery system of an antifungal agent, fluconazole, based on the concept of ion-activated in situ gelation. ocular in situ gels can increase the drug residence time thus increasing the bioavailability. Gelrite was used as the gelling agent in combination with HPMC E-50(Hydroxy Propyl methyl Cellulose) that acted as a viscosity-enhancing agent. Formulations were evaluated for physical parameter like clarity, pH, drug content, rheological studies, sterility test, in vitro drug release studies. the formulations were therapeutically efficacious, stable and provide sustained release of drug over a period of 8 Hrs. These results demonstrate that developed system is a best alternative to conventional ophthalmic drops.

ASSESSMENT OF INDIVIDUAL SLEEP DISTURBANCES IN TYPE-2 DIABETES MELLITUS: AN INTERVENTIONAL STUDY

THOKANOLA LALAPPA, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

Background: Diabetes mellitus is a widespread disease, associated with rapid social and cultural changes, such as aging of population, urbanization, dietary changes, reduced physical activity, and unhealthy behaviours, leading to lower quality of life and decreased survival of affected individuals. This study aims to evaluate the sleep quality in patients with type 2 diabetes mellitus (T2DM), and to assess the relevance of other factors to sleep quality.

Methods: A cross-sectional study was carried out at the Government general hospital, Ananthapuramu, during the period from December 2020 to May, 2021. A total of 384 patients with T2DM were recruited. Data were collected using the Pittsburgh sleep quality index (PSQI) and ESS to assess the sleep quality with a cutoff point of PSQI ≥ 8. Participants' demographic background data were also recorded. Statistical analysis was conducted by using graph pad prism.

Results & Discussion: Using Scale scores with cutoff point global PSQI ≥ 8 for sleep evaluationin our study, we found that 77.6% of T2DM patients suffer from poorsleep quality.Our study found that poor sleep quality was higher in employed diabeticpatients, as compared to unemployed patients.This study showed that diabetic patients on insulin treatment were 2.17times more likely to complain of poor sleep quality compared to patients receiving OHA only.

Conclusions: Effectiveness of patient counselling by clinical pharmacist which improves the sleep quality. Thus patients reporting with sleep difficulties should be screened for diabetes. Type 2 diabetes patients with poor glycaemic control should be assessed for sleep disorders and if present it should be corrected to achieve optimum control of blood sugar levels.

IMPACT OF MEDICATION ADHERENCE IN HYPERTENSIVE PATIENTS IN RURAL POPULATION OF GUNTUR DISTRICT IN SOUTH INDIA.

PADMA GUNTI, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

Aim and Objectives: To study and assess the impact of medication adherence in patients suffering from hypertension.

Methodology: A prospective observational cohort study was conducted for a period of 6 months in a rural area of Guntur. A total of 300 hypertensive patients who were newly diagnosed or suffering from hypertension since 3 years were recruited. Blood pressure was measured by using a sphygmomanometer and other demographics were collected. Medication adherence was assessed using the HILL-BONE compliance to high blood pressure therapy scale (HILL-BONE CHBPTS).

Results: Hill-Bone scores were analyzed in the aspects of medication compliance, salt usage, and appointment keeping and observed a modest improvement in all aspects with an average of 8.49.

Conclusion: Proper treatment and awareness about medication and their usage will improve medication adherence. Good medication adherence not only improves the clinical outcomes, it is also having a great impact on improving the quality of life and reducing health care costs which are due to complications and co-morbidities of hypertension. Clinical pharmacists play a vital role in improving the adherence by providing periodic counselling, which in turn helps to reduce the burden of illness.

FORMULATION AND EVALUATION OF OPHTHALMIC DELIVERY OF FLUCONAZOLE FROM ION ACTIVATED IN SITU GELLING SYSTEM

KULSUM SUBHIYA, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

Fungal keratitis is a sight threating ocular infection that most frequently occur as a infection of candida species. The present work describes the formulation and evaluation of an ophthalmic delivery system of an antifungal agent, fluconazole, based on the concept of ion-activated in situ gelation. ocular in situ gels can increase the drug residence time thus increasing the bioavailability. Gelrite was used as the gelling agent in combination with HPMC E-50(Hydroxy Propyl methyl Cellulose) that acted as a viscosity-enhancing agent. Formulations were valuated for physical parameter like clarity, pH, drug content, rheological studies, sterility test, in vitro drug release studies. the formulations were therapeutically efficacious, stable and provide sustained release of drug over a period of 8 Hrs. These results demonstrate that developed system is a best alternative to conventional ophthalmic drops.

RP-HPLC method development and validation for estimation of rivaroxaban in pharmaceutical dosage forms

BEGUM NAUSHEEN, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

Rivaroxaban, an anti-clotting medication, acts at a crucial point in the blood-clotting process and stops the formation of blood clots. In this study, RP-HPLC method was developed for the determination of rivaroxaban in tablets (Xarelto® (10 mg)). Phenomenex Luna 5 µm C18 100 Å LC Column (250 x 4.6 mm) was used at 40 ºC. Isocratic elution was performed with ACN:Water (55:45 v/v) mixture. The flow rate was 1.2 mL min-1 and UV detection was at 249 nm. Internal standard (Caffeine) and rivaroxaban were eluted within 2.21 and 3.37 minutes, respectively. The developed method was validated according to the ICH guidelines and found to be linear within the range 0.005 - 40.0 µg mL-1. The method was accurate, precise, robust and rapid. Thus, it was applied successfully for the quality control assay of rivaroxaban in tablet dosage form.

SPIRONOLACTONE INDUCED GYNECOMASTIA: A CASE REPORT

KOTA RADHIKA , Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

Gynaecomastia is generally caused by increased ratio of free circulating oestrogens/androgens or altered effects of these hormones on their correspondent intracellular receptors in the mammary tissue. The pathologies influencing the levels of circulating sexual hormones (i.e. testicular or adrenal neoplasias, hepatic cirrhosis, hyperthyroidism hypogonadism obesity, refeeding syndrome. The active principles known for most frequently causing gynecomastia are exogenous oestrogens, antiandrogens, 5 alpha reductase inhibitors, spironolactone and cimetidine. Medical history plays a fundamental role in the diagnosis of drug induced gynecomastia. A large variety of drugs have been implicated in its pathogenesis and they may induce gynecomastia by decreasing testosterone production ,increasing peripheral conversion of testosterone to estradiol and displacing estradiol from sex hormone binding globulin. We present a case report of 41 old male patient affected by spironolactone induced gynecomastia and discuss its pathogenetic mechanism.

A PRACTICAL APPROACH TO RP HPLC ANALYTICAL METHOD DEVELOPMENT

KALLEM SRIKRISHNA GOUD , Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

High performance liquid chromatography is one of the most widely used tools to identify and quantify potency in drug substances and drug products. Analytical method development and validation are two very critical processes performed before release of a method for use in Quality Control department. This article focuses on stepwise practical approach towards developing a RP HPLC assay method. The various contributing parameters and its effect on the performance of the RP HPLC analytical method being developed are described simply, such that a new chromatographer is able to develop a method with the understanding of the RP HPLC method development process and its parameters.

APPLICATION OF SIMULTANEOUS EQUATION METHOD FOR THE DETERMINATION OF AZITHROMYCIN AND CEFIXIME TRIHYDRATE IN TABLET FORMULATION

MANI TEJA VENKATA TENNETI, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract:

A simple, accurate, and precise uv-spectrophotometric method has been developed for the simultaneous estimation of azithromycin (AZI) and cefixime trihydrate (CEFI) in tablet formulation. The method was based on employing simultaneous equation method for the analysis of both drugs. AZI and CEFI have shown absorbance maxima at 222 and 289 nm in methanol, respectively. The linearity was obeyed in the concentration range of 10-50µg/ml for both drugs, with a significantly high correlation coefficient (r2 = 0.999). The limits of detection for AZI and CEFI were 0.81 and 1.52 µg/ml, respectively, and the limits of quantitation for AZI and CEFI were 2.40 and 4.60 µg/ml, respectively. The suitability of the developed method for quantitative determination of drugs was proved by validation. The method was successfully used to analyze a tablet formulation.

"A REVIEW: POLYHYDROQUINOLINE ACT AS BIOLOGICAL ACTIVE MOLECULES"

NAGENDRA BABU MOKARA, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT: 1,4-Dihydropyridine (1,4-DHP) and polyhydroquinoline have a six membered aromatic rings. Pyridine ring system represents the major class of nitrogen heterocycles and its analogues exhibited diverse biological and physiological activities. Polyhydroquinolines, which are structurally related to DHPS, are another important group of nitrogen containing heterocycles that have attracted much attention because of their diverse therapeutic and pharmacological properties, such as their ability to modulate calcium channels. Polyhydroquinolines have been synthesized under mild conditions augmented by conventional heating, microwave irradiation, and uitrasound. Different polyhydroquinoline derivative synthesis were studied by using the reaction of dimedone, ethyl acetoacetate, substituted salicylaldehyde and ammonium acetate in ethanol in the presence of differ catalyst. All the synthesized derivatives evaluated were biologically active they showed anticancer activity, antibacterial activity, antifungal activity, antimalarial activity, antituberculosis activity, antihypertensive activity, anticoagulant activity. Multicomponent reactions to produce a particular product were performed by the one-pot MCR’s methodology that offers significant advantages over usual bimolecular reactions.

MOLECULAR IMPRINTING

PAVAN NAKKA, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT: Molecularly imprinted polymers have been used in a variety of analytical procedures in analytical separation science, including liquid chromatography, capillary electro- chromatography and capillary electrophoresis, immunoassay, and elective sorbent in chemical sensors. The ability to create sorbents with selectivity pre-determined for a specific substance or group of structural analogues of environmental and biological materials is a benefit of imprinted polymers. Imprinted polymers' increased selectivity over traditional sorbents may result in clearer chromatographic traces in subsequent analytical procedures. In addition, problems like peak broadening and tailing that are often related to imprinted polymers in chromatography are not present in the solid phase extraction application. As chiral stationary phases for enantiomer separations, imprinted polymers have been the subject of the majority of liquid chromatographic experiments. In capillary electro-chromatography, the use of imprinted polymers as selective sorbents has also been demonstrated. A method for producing artificial recognition sites on polymer matrices that complement the template in terms of size, shape, and spatial arrangement of functional groups is known as molecular imprinting. Molecularly imprinted polymers (MIP) have a high selectivity and affinity for the target molecules employed in the moulding process, which makes them an ideal polymer for use with molecular imprinting techniques.

STEREOCHEMISTRY

VINAY KUMAR PERKA, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT: The study of the static and dynamic features of the molecules' three-dimensional forms is known as stereochemistry. It has long offered a base for comprehending both structure and reactivity. At the same time, stereochemistry is a legitimately fascinating area of study in and of itself. Simply said, the visual beauty of chemical structures and the exciting way that this area of study combines chemistry, geometry, and topology to investigate three-dimensional shapes intrigue many scientists. Additionally, stereochemistry has a number of extremely significant practical implications. Because the components of life—amino acids, nucleotides, and sugars— are chiral and manifest in nature in enantiomerically pure forms, nature is intrinsically chiral. Therefore, any materials developed by humans to engage with or alter nature interact with a chiral environment. For bioorganic chemists, this is a crucial topic, and for pharmaceutical chemists, it is a practical one. To ensure that both enantiomers of a medicine are safe, the Food and Drug Administration (FDA) now mandates that it be produced in enantiomerically pure forms or subjected to stringent testing. This study, thus focuses on the various aspects of stereochemistry that can improve and modify the chemical activities and reactivity.

STUDY OF NEW SYNTHESIZED DERIVATIVES OF PYRAZOLES

RADHIKA VADDEPALLI

GALVA BHARGAVI, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT: Five-membered heterocyclic molecules known as pyrazoles have contributed significantly to the theory of heterocyclic chemistry. These substances are widely used as the primary structural component of a wide range of substances with biological properties like antifungal, anticancer, antiviral, antibacterial, anti-tubercular, and antiphrastic, in addition to important medicinal and agrochemical activities. An effort was made to create a simple and practical method of synthesising substituted pyrazolines by reacting aromatic aldehyde phenyl hydrazones with 4-methoxy cinnamonitrile while Chloramine-T was present. Using D-glucose as the starting point, this could prove to be a methodology for the synthesis of glucosyl pyrazole derivatives. The proposed microwave-mediated solvent-free techniques produced good reaction rates and yields, indicating that these steps can be regarded as simple, efficient, and environmentally sustainable synthetic approaches to produce pyrazole derivatives. Compared to the conventional process, this one avoids utilising very dangerous substances while yet offering an efficient way to make sugar-heterocyclic derivatives. The EATOS software, particularly in relation to the novel "one-pot" approach, validated this.

STUDY OF RECENTLY SYNTHESIZED DERIVATIVE OF QUINOLINE

KHAJA PASHA, Professor, AZAD COLLEGE OF PHARMACY

ABSTRACT: Quinolines and their fused heterocyclic derivatives, which have been tested for a variety of pharmacological functional groups, are a crucial class of compounds for the development of new drugs. As a result, numerous experiments have synthesised these compounds as target structures and assessed their biological activities, which include anti-cancer, anti- bacterial, anticonvulsant, anti-malarial, anti-inflammatory, and cardiovascular activities. A class of synthetic, broadly acting antibacterial medications is known as quinolines. Although the majority of quinolones used in medicine are fluoroquinolones, derivative chemicals work against bacteria by inhibiting bacterial DNA from unwinding and replicating within bacterial cells. Numerous techniques have occasionally been developed for the synthesis of quinoline and its derivatives by microwave-assisted, ultrasound-promoted, or heterogeneous acid-catalyzed methods because they have a wide range of pharmacological activities and are also used as ligands in various biologically-modelled transition metal complexes. Other others, under UV light or solvent-free circumstances. Most of these techniques that have been described in the literature have been compiled by us here. The researcher working in this topic will find this review to be of great use. And it would assist them in creating a fresh, cost-effective, efficient way.

STUDY OF NEW SYNTHESIZED DERIVATIVES OF PYRAZOLES

SUMIA FATIMA, Associate Professor, AZAD COLLEGE OF PHARMACY

ABSTRACT: A five membered ring system known as pyrazoles are the important members of heterocyclic compounds. Pyrazole analogues have been known to exhibit antimicrobial, analgesic, anticancer, anti-tubercular, anti- inflammatory, antidepressant, anticonvulsant, ant hyperglycemic, antipyretic, antihelmintic, antioxidant and herbicidal properties. Various methods have been performed for preparation and synthesis of substituted pyrazoles by the reaction of 1,3-diketones with hydrazine's 1,3-dipolar cycloaddition of diazole compounds with alkynes and the reaction of a ß-unsaturated aldehydes and ketones with hydrazine's. A facile and convenient route of synthesis for substituted pyrazolines based on the reactions of aromatic aldehyde phenyl hydrazones with 4-methoxy cinnamonitrile in the presence of Chloramine-T has been developed. Using D-glucose as the starting material a protocol for the synthesis of glucosyl pyrazole derivatives was made.The proposed microwave- mediated solvent-free techniques produced good reaction rates and yields, indicating that these steps can be regarded as simple, efficient and environmentally sustainable synthetic approaches to produce pyrazole derivatives. Compared to the conventional process, this one avoids utilizing very dangerous substances while yet offering an efficient way to make sugar- heterocyclic derivatives. This is confirmed by the EATOS software, especially with regards to the new "one-pot" method.

INSULIN AS A PRIME DRUG FOR THE TREATMENT OF DIABETES

SAHEEL QURESHI, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT

Diabetes Mellitus is a metabolic disorder characterized by hyperglycaemia, glycosuria, and hyperlipidemia. At present, India is considered as the diabetic capital of the world. There are approximately 3.5 crore diabetics in India, and this figure is expected to increase up to 5.2 crore by 2025. Two major types of diabetes mellitus are IDDM and NIDDM. Insulin is a hormone. And like many hormones, insulin is a protein. Insulin is secreted by groups of cells within the pancreas called islet cells. Discovery of Insulin is appropriately attributed to Banting and Best. It is made up of 51 amino acids having two chains. Chain A have 21 and Chain B have 30 amino acids. The more commonly used types of insulin are Rapid-acting (aspart or Lispro), Short-acting (regular insulin), Long-acting (ultralente insulin), Insulin glargine and insulin detemir. Insulin delivery systems that are currently available for the administration of insulin include syringes, insulin infusion pumps, jet injectors and pens. Insulin syringe is the most commonly used, and the most economical of all the delivery devices. Insulin pump is known as continuous subcutaneous insulin infusion therapy. A jet injector is a type of medical injecting syringe that uses a high-pressure narrow jet of the injection liquid instead of a hypodermic needle to penetrate the epidermis. Pen is reusable and prefilled device. Many insulin delivery devices are under process. The purpose of this review is to focus more light on the insulin as a prime drug for the treatment of diabetes from historical era to present time.

SYNTHESIS OF NEW SUBSTITUTED ALDEHYDEDERIVATIVES

VENKATA RAMANA MUTTAVARAPU, professor, AZAD COLLEGE OF PHARMACY

Abstract: the aim of this research is to prove benzimidazole is a good bioactive molecule hence, it is worth to synthesis some new benzimidazole derivatives for better Anti-microbial activity by inhibiting the bacterial neucleic acid and proteins synthesis. This ability of benzimidazole is due to their structural similarities with the purine. In recent years, benzimidazole moiety have attracted much attention for their excellent biological properties, such as antimicrobial, anti-inflammatory,Antitubercular, anthelmintics, and Antitumor activities. Nitrogen containing heterocyclic important compound is a benzimidazole constitute an important class of biologically active e.g. antimicrobial, antiviral, and anti-inflammatory agent's.in this research chemicals used are O-phenylenediamine, benzaldehyde, ammonium chloride, ethyacetate, hexane, ethanol, silica gel-254. In Proposed scheme for reaction O-phenylenediamine is reacted with benzaldehyde to give 2 phenyl 1-H benzimidazole. Purity of 4-hydroxybenzaldehyde was cheked by TLC method when it was run under the solvent system of ethyacetate, hexane (1;2), Rf value was found to be 0.65.several other derivatives of substituted benzimidazole can be prepared and evaluated for their antimalarial activity. Same derivatives can also be evaluated for other activities like anti tubercular, anticonvulsant. Structutal based drug design in order to optimize the pharmacological profiles.

GREEN SYNTHESIS OF BENZIMIDAZOLE

MUBEENA SALAAR, Assistant Professor AZAD COLLEGE OF PHARMACY

Abstract: Green chemistry is the new and rapidly emerging field of chemistry. It involves The utilization of a set of principles that reduces or eliminates the use or generation of Hazardous substances in the design, manufacture and application of chemical products. In Recent decades, a large number of reports related to synthesis of Nitrogen, Oxygen and Sulphur containing heterocyclic have appeared owing to awide variety of their biological Activity. In recent years, numerous reports concerning the synthesis of heterocyclicCompounds under various conditions like solvent-free, reactants immobilized on solid Support, microwave irradiation condition, green catalyst and green solvent have appeared.benzimidazole is a heterocyclic aromatic organic compound. It is an iimportan Pharmacophore and privileged structure in medicinal chemistry. It plays a very important role With plenty of rational therapeutic activities such as antiulcer, antihypertensive, analgesic,Anti-inflammatory, anti-viral, antifungal, anticancer, and antihistaminic. Because of its Importance, the methods for their synthesis have become a focus of Synthetic OrganicChemists. Therefore in the present review I tried to compile the chemistry of differentDerivative of substituted benzimidazole and some of the important methodologies used for theSynthesis. Conventional methods of syntheticreactions need longer heating time, elaborateAnd tedious apparatus set up which result in higher cost and environmental pollution inContrast to greener methods which are ecofriendly and economical.

PHYTOCHEMICAL STUDIES OF CLOVE

MAHESH GOTTIPATI, *Assistant Professor AZAD COLLEGE OF PHARMACY*

Abstract:The aim of present study was to investigate the phytochemical screening and to compare the antimicrobial activity of oils of Clove bud and Cardamom.

Clove bud was successively extracted by steam distillation and isolated with Dichloromethane. The phytochemical analysis revealed the presence of alkaloids, glycoside, steroids, carbohydrates, terpenoids, tannins and phenolic compound.

The dichloromethane extract was chromatographed over silica Gel (60-120) and eluted with pure toluene, toluene: Dichloromethane (9:1), toluene: Dichloromethane (8:2), toluene: Dichloromethane (7:3), fraction were monitored by T.L.C. similar fractions were combined and concentrated .eleven fractions were obtained and were labelled as f1, f2, f3 to f11. Cardamom fruit was successively extracted with petroleum ether. The phytochemical analysis revealed the presence of alkaloids, glycoside, steroids, protein, carbohydrates, terpenoids, tannins and phenolic compound. The Petroleum ether extract was chromatographed over silica Gel (60-120) and eluted with pure Benzene, Benzene: chloroform (9:1), Benzene: chloroform (8:2), Benzene: chloroform (7:3), Benzene: chloroform (6:4), Benzene: chloroform (5:5), Benzene: chloroform (4:6), and with pure chloroform. Fractions were monitored by T.L.C. similar fractions were combined and concentrated.

Fourteen fractions were obtained were labelled as fcd1, fcd2 to fcd14. Antimicrobial activity was performed by Disc diffusion method on the staphylococcus aureus (+ve), Escherichia coli (–ve), Pseudomonas

aerugenosa (-ve) bacteria and was found that cardamom and clove extract both were similar active for Pseudomonas aerugenosa (-ve) but cardamom was more active for E. coli than clove extracts.

SYNTHESIS, PHARMACOLOGICAL EVALUATION AND MOLECULAR DOCKING STUDIES OF 1-ACETYL 5-SUBSTITUTED PHAENYL 3-AMINO PHENYL 2-PYRAZOLINES

MOHAMMAD TABASSU TANVEER HAYATH, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT

The five-membered heteorocyclic group of pyrazoles/pyrazolines play s important role in drug discovery. pyrazoles/pyrazolines present a wide range of biological activities. The synthesis of the pyrazoles/pyrazolines derivatives was accomplished via the condensation of the appropriate substituted aldehydes and aceto phenones, suitable chalcones and hydrazine hydrate in absolute ethanol in the presence of drops of glacial aceticacid. The compounds are obtained in good yields 68.99% and that it structure was confirmed using IR, Hl-NMR, C13-NMR and elemental analysis. Molecular docking studies for pyrazoline derivatives were studied and reported.

Molecular docking studies reduce the time and costs involved in drug discovery process and have no adverse effect on the environment. Pyrazoles have been the recent target of numerous methodologies, mostly due to their prevalence as scaffolds in synthesis of bioactive compounds and reactions in different media. In this review, an attempt is made to provide an up to date developments in the synthetic strategies, biological activities associated with these classes of compounds. The chemical and biological applications shown by the pyrazolin analogues in recent years were discussed

STUDY TO INVESTIGATE PHYTOCHEMICAL AND ANTIMICROBIAL ACTIVITY OF ECLIPTA ALBA (LEAF) SOLANUM ZANTHOCARBUM (SEED METHONALIC EXTRACT COMBINATION)

IKRAM SARMAD MOHAMMAD MOHAMMAD ARSALAN, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT:

Objective: This study aims to phytochemical and antimicrobial study of Eclipta Alba.
Materials and Methods:
Antimicrobial activity of flavonoids (free and bound) of Eclipta Alba L. was determined by disc diffusion assay against four bacteria (*Escherichia coli*, *Pseudomonas aeruginosa*, *Proteus mirabilis*, and *Staphylococcus aureus*) and four fungi (*Aspergillus flavus*, *Aspergillus niger*, *Trichophyton mentagrophytes*, and *Candida albicans*). Minimum inhibitory concentration (MIC) of the extract was evaluated through micro broth dilution method, while minimum bactericidal/fungicidal concentration was determined by subculturing the relevant samples. Total activity (TA) of extracts against each sensitive pathogen was also evaluated.

Results: Out of fungi; *A. flavus*, *A. niger*, and *T. mentagrophytes* were found to be resistant, against which none of the tested extracts showed activity. Bound flavonoids extract of root showed best activity against C. albicans (inhibition zone (IZ) 27.66, MIC 0.039, minimum fungicidal concentration (MFC) 0.039). TA of free flavonoid extract of root was found to be the same for *P. mirabilis* and *S. aureus* (192.30 ml/g). Two flavonoids quercetin and kaempferol were identified in the bound flavonoids of stem extract which showed activity against all the microorganisms.
Conclusion: Results of the present investigation indicate that *Eclipta Alba* has good antimicrobial activity with low range of MIC, hence can be exploited for future plant-based antimicrobial drugs.

DEVELOPMENT AND STANDARDIZATION OF POLY HERBAL OIL AND CLINICAL SIGNIFICANCE OF ITS HAIR GROWTH STIMULATION

SARA BANU, Assistant Professor AZAD COLLEGE OF PHARMACY

ABSTRACT

Background: Oil formulation is a one of the topical formulations and it gives better absorption on the skin and less adverse effect comparable to other formulation. When the plant formulated a soil it gives better absorption through skin and gives maximum therapeutic. There view of Murray akoenigii, Phyllanthus emblica, Azadira chtaindica, and Mentha spicata plants shows good medicinal value. All the plants provide hair growth activity. Among topical formulation, the oil formulation is more suitable for topical application and produce cooling effects.

Aim & objectives: To develop and standardization of Poly Herbal Oil and clinical evaluation of its hair growth stimulation.

Materials and methods: The Phytochemical investigation of a plant involves authentication and extraction of plant material; qualitative and quantitative evaluations; separation and parallel to this may be the assessment of pharmacological activity.

Results and discussion: Preliminary phytochemical screening was carried out for all the plants and its extracts to determine the presence of active principle in plants. Fluorescence analysis was carried out to detect the presence of chromophore present in the powder and extracts. Qualitative estimation of total flavonoid contend and total Phenolic content were determined by spectro photometrically all the extract showed significant amount of flavonoid and phenolic compounds.

Conclusion: It is concluded that the prepared poly herbal oil containing *Murrayakoenigi.i, Phyllathusemblica, Azadirachtaindica* and *Menthaspicata* proved hair growth activity.

SYNTHESIS CHARACTERIZATION AND ANTI MICROBIAL SCREENING OF 1,3,4-THIADAZOLE PHENOL DERIVATIVES

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ABSTRACT

Objectives: Pathogenic microbes are causal agents for various types of severe and even lethal infectious diseases. Despite of development in medication, bacterial and fungal infections still persist to be a vital problem in health care. Bacteria and several fungal species have shown resistance to antibiotics used in treatment to current medications. Therefore, it is a considerable field of interest in the design and development of novel compounds with antimicrobial activity.

Methods: The compounds bearing a heterocyclic ring play an imperative role among other organic compounds with pharmacological activity used as drugs in human for control and cure of various infections. Thiadiazoles containing nitrogen–sulfur atom as part of their cyclic structure which shown wide-ranging application as structural units of biologically active molecules and are very useful intermediates in Medicinal Chemistry.

Results: The effectiveness of the thiadiazole nucleus was established by the drugs currently used for the treatment of various infections. 1,3,4-Thiadiazoles and some of their derivatives are widely studied because of their broad spectrum of pharmacological activities.

Conclusion: In the present work, a series of 1,3,4-Thiadiazole derivatives were synthesized by cyclization of a group of various benzaldehyde with thiosemicarbazide in the presence of various reagent like $FeCl^3$, HCHO by losing a molecule of water. These derivatives were found to possess prominent antimicrobial activity.

DESIGN, SYNTHESIS AND *INVITRO* ANTI MICROBIAL ACTIVITY OF BENZIMIDAZOLE DERIVATIVES.

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ABSTRACT:

Benzimidazoles possess one of the most, useful biological activities. Benzimidazoles are utilizedin many therapeutic applications such as anti inflammatory, anti anxiety and anti microbial compounds.

We have developed a simple methodology for the preparation of substituted Benzimidazoles derivatives (HW1 –HW7). The direct condensation of 0-phenlenediamine (1 mmole) and appropriates aliphatic aromatic carboxylic acid (1 mmol) gave the required 2-substituted 1H Benzimidazoles (HW1 –HW7) in 60 to 85 % yields. All the synthesized compounds were characterized by using spectral techniques such as IR ^{H}NMR^{13C}NMR and MS. The advantages of this method are extremely mild technique and compliance with green chemistry protocols.

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